



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

STANDARD LOW BID PROJECT – INVITATIONAL
Project Budgets \$50,000 - \$100,000

April 18, 2007

UNIVERSITY VILLAGE
HILLSIDE LANDSCAPE
&
IRRIGATION UPGRADES

WEBER STATE UNIVERSITY
OGDEN, UTAH

DFCM Project Number 07034810

Bingham Engineering
5180 Wiley Post Way
Salt Lake City, Utah 84118

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Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov> or are available upon request from DFCM.

DFCM General Conditions dated May 25, 2005.

DFCM Application and Certification for Payment dated May 25, 2005.

Technical Specifications :

Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at <http://dfcm.utah.gov>

INVITATION TO BID

Only firms that have been invited to submit bids on this project are allowed to bid on this project. Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

**UNIVERSITY VILLAGE HILLSIDE LANDSCAPE & IRRIGATION UPGRADES
WEBER STATE UNIVERSITY, OGDEN, UTAH
DFCM PROJECT NO: 07034810**

<u>Company</u>	<u>Contact</u>	<u>Fax</u>
Grass Plus	Travis Poulson	801-394-2257
Erickson Landscape	Ron Tatton	801-262-2995
RBI	Jon Le Mon	801-553-0525
WKB Landscape	Bill Berg	801-260-0669

Bids will be in accordance with the Contract Documents that will be available on Thursday April 19, 2007 at 12:00 PM, and distributed in electronic format only on CDs from DFCM at the Wasatch Building at the Utah State Fairpark, approximately 155 North 1000 West, Salt Lake City, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Bob Anderson, DFCM, at 801-652-6754. No others are to be contacted regarding this bidding process. The construction budget for this project is \$98,500.00.

A **mandatory** pre-bid meeting will be held at 10:00 AM on Wednesday April 25th, 2007 at Weber State University, University Village East hillside. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 1:15 PM on Thursday May 3, 2007 at the Wasatch Building at the Utah State Fairpark, approximately 155 North 1000 West, Salt Lake City, Utah. Refer to the map on the DFCM website for directions (http://dfcm.utah.gov/downloads/fairpark_map.pdf). Bids will be opened and read aloud in the Wasatch Building at the Utah State Fairpark. NOTE: Bids must be received at the Wasatch Building at the Utah State Fairpark by the specified time.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
Joanna Fisher, Contract Coordinator
4110 State Office Building, Salt Lake City, Utah 84114

PROJECT DESCRIPTION

The project consists of grubbing and clearing existing vegetation on the hillside, spray for existing vegetation, installation of booster pump and irrigation system, retaining wall erection and planting schedule to the hillside East of the Weber State University, University Village student housing facility.

**PROJECT SCHEDULE****PROJECT NAME: UNIVERSITY VILLAGE HILLSIDE LANDSCAPE & IRRIGATION UPGRADES, WEBER STATE UNIVERSITY****DFCM PROJECT NO. 07034810**

Event	Day	Date	Time	Place
Bidding Documents Available	Thursday	April 19, 2007	12:00 PM	Wasatch Building Utah State Fairpark Approx 155 North 1000 West Salt Lake City, UT or DFCM web site *
Mandatory Pre-bid Site Meeting	Wednesday	April 25, 2007	10:00 AM	Weber State University, University Village East Hillside
Last Day to Submit Questions	Monday	April 30, 2007	4:00 PM	Bob Anderson-DFCM E-Mail: bobanderson@utah.gov
Addendum Issued Responding to Questions (if needed)	Tuesday	May 1, 2007	2:00 PM	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Thursday	May 3, 2007	1:15 PM	Wasatch Building Utah State Fairpark Approx 155 North 1000 West Salt Lake City, UT **
Sub-contractor List Due	Friday	May 4, 2007	1:30 PM	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Friday	August 3, 2007	4:00 PM	

* **NOTE:** DFCM's web site address is <http://dfcm.utah.gov>

** **Due to the ongoing construction on Capitol Hill and the anticipated shortage of parking during 2007, all bids will be received and opened at the Wasatch Building at the Utah State Fairpark. Refer to map on the DFCM web site for directions (http://dfcm.utah.gov/downloads/fairpark_map.pdf)**



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **University Village Hillside Landscape & Irrigation Upgrades – Weber State University – Ogden, Utah – Project No. 07034810** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS (\$_____) (In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by August 3, 2007, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$200.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in the Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract.

The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within the time set forth.

Type of Organization:

(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

Respectfully submitted,

Name of Bidder

ADDRESS:

Authorized Signature

INSTRUCTIONS TO BIDDERS

1. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Invitation to Bid.

2. Bids

Before submitting a bid, each contractor shall carefully examine the Contract Documents, shall visit the site of the Work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the Contract Documents. If the bidder observes that portions of the Contract Documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Representative and the necessary changes shall be accomplished by Addendum.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the deadline for submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. **THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.**

If the bid bond security is submitted on a bid bond form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **NOTE: A cashier's check cannot be used as a substitute for a bid bond.**

3. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the contract sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for subcontractors will be specified in the Supplementary General Conditions.

4. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these Contract Documents. The Subcontractors List shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the Contract Documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

5. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda posted on DFCM’s web site at <http://dfcm.utah.gov>. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

6. Addenda

Addenda will be posted on DFCM’s web site at <http://dfcm.utah.gov>. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

7. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of the State of Utah to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

8. DFCM Contractor Performance Rating

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

9. Licensure

The Contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

10. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

11. Time is of the Essence

Time is of the essence in regard to all the requirements of the Contract Documents.

12. Withdrawal of Bids

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

13. Product Approvals

Where reference is made to one or more proprietary products in the Contract Documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the Contract Documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued addendum. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the A/E.

14. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the contractor, subcontractor or sub-subcontractor.

15. Debarment

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of \$ _____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____.

Principal's name and address (if other than a corporation):

By: _____

Title: _____

Principal's name and address (if a corporation):

By: _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

STATE OF _____)
COUNTY OF _____) ss.

By: _____
Attorney-in-Fact (Affix Corporate Seal)

On this ____ day of _____, 20_____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My Commission Expires: _____

Resides at: _____

Agency: _____
Agent: _____
Address: _____
Phone: _____

NOTARY PUBLIC

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

**Division of Facilities Construction and****INSTRUCTIONS AND SUBCONTRACTORS LIST FORM**

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, on the following basis:

PROJECTS UNDER \$500,000 - ALL SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE - ALL SUBS \$35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- Bidder must list "Self" if performing work itself.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
Page No. 2

GROUND FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self"	300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: 350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

**PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS
SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.**

**SUBCONTRACTORS LIST**

FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #

We certify that:

1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____

SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

FUGITIVE DUST PLAN

The Contractor will fill out the form and file the original with the Division of Air Quality and a copy of the form with the Division of Facilities Construction & Management, prior to the issuance of any notice to proceed.

The Contractor will be fully responsible for compliance with the Fugitive Dust Control Plan, including the adequacy of the plan, any damages, fines, liability, and penalty or other action that results from noncompliance.

Utah Division of Air Quality

April 20, 1999

**GUIDANCE THAT MUST BE CONSIDERED IN DEVELOPING AND SUBMITTING A
DUST CONTROL PLAN FOR COMPLIANCE WITH R307-309-3, 4, 5, 6, 7**

Source Information:

1. Name of your operation (source): provide a name if the source is a construction site.
2. Address or location of your operation or construction site.
3. UTM coordinates or Longitude/Latitude of stationary emission points at your operation.
4. Lengths of the project, if temporary (time period).
5. Description of process (include all sources of dust and fugitive dust). Please, if necessary, use additional sheets of paper for this description. Be sure to mark it as an attachment.
6. Type of material processed or disturbed.
7. Amount of material processed (tons per year, tons per month, lbs./hr., and applicable units).

8. Destination of product (where will the material produced be used or transported, be specific, provide address or specific location), information needed for temporary relocation applicants.
9. Identify the individual who is responsible for the implementation and maintenance of fugitive dust control measures. List name(s), position(s) and telephone number(s).
10. List, and attach copies of any contract lease, liability agreement with other companies that may, or will, be responsible for dust control on site or on the project.

Description of Fugitive Dust Emission Activities
(Things to consider in addressing fugitive dust control strategies.)

1. Type of activities (drilling and blasting, road construction, development construction, earth moving and excavation, handling and hauling materials, cleaning and leveling, etc).
2. List type of equipment generating the fugitive dust.
3. Diagram the location of each activity or piece of equipment on site. Please attach the diagram.
4. Provide pictures or drawings of each activity. Include a drawing of the unpaved/paved road network used to move loads “on” and “off” property.
5. Vehicle miles travels on unpaved roads associated with the activity (average speed).
6. Type of dust emitted at each source (coal, cement, sand, soil, clay, dust, etc.)
7. Estimate the size of the release area at which the activity occurs (square miles). For haul or dirt roads include total miles of road in use during the activity.

Description of Fugitive Dust Emission Controls on Site

Control strategies must be designed to meet 20% opacity or less on site (a lesser opacity may be defined by Approval Order conditions or federal requirements such as NSPS), and control strategies must prevent exceeding 10% opacity from fugitive dust at the property boundary (site boundary) for compliance with R307-309-3.

1. Types of ongoing emission controls proposed for each activity, each piece of equipment, and haul roads.
2. Types of additional dust controls proposed for bare, exposed surfaces (chemical stabilization, synthetic cover, wind breaks, vegetative cover, etc).
3. Method of application of dust suppressant.
4. Frequency of application of dust suppressant.
5. Explain what triggers the use of a special control measure other than routine measures already in place, such as covered loads or measures covered by a permit condition (increase in opacity, high winds, citizen complaints, dry conditions, etc).
6. Explain in detail what control strategies/measures will be implemented off-hours, i.e., Saturdays/Sundays/Holidays, as well as 6 PM to 6 AM each day.

Description of Fugitive Dust Control Off-site

Prevent, to the maximum extent possible, deposition of materials, which may create fugitive dust on public and private paved roads in compliance with R307-309-5, 6, 7.

1. Types of emission controls initiated by your operation that are in place “off” property (application of water, covered loads, sweeping roads, vehicle cleaning, etc.).

2. Proposed remedial controls that will be initiated promptly if materials, which may create fugitive dust, are deposited on public and private paved roads.

Submit the Dust Control Plan to:

Executive Secretary
Utah Air Quality Board
POB 144820
15 North 1950 West
Salt Lake City, Utah 84114-4820

Phone: (801) 536-4000
FAX: (801) 536-4099

Fugitive Dust Control Plan Violation Report

When a source is found in violation of R307-309-3 or in violation of the Fugitive Dust Control Plan, the source must submit a report to the Executive Secretary within 15 days after receiving a Notice of Violation. The report must include the following information:

1. Name and address of dust source.
2. Time and duration of dust episode.
3. Meteorological conditions during the dust episode.
4. Total number and type of fugitive dust activities and dust producing equipment within each operation boundary. If no change has occurred from the existing dust control plan, the source should state that the activity/equipment is the same.
5. Fugitive dust activities or dust producing equipment that caused a violation of R-307-309-3 or the source's dust control plan.
6. Reasons for failing to control dust from the dust generating activity or equipment.
7. New and/or additional fugitive dust control strategies necessary to achieve compliance with R307-309-3, 4, 5, 6, or 7.
8. If it can not be demonstrated that the current approved Dust Control Plan can result in compliance with R307-309-3 through 7, the Dust Control Plan must be revised so as to demonstrate compliance with 307-309-3 through 7. Within 30 days of receiving a fugitive dust Notice of Violation, the source must submit the revised Plan to the Executive Secretary for review and approval.

Submit the Dust Control Plan to:

Executive Secretary	Phone: (801) 536-4000
Utah Air Quality Board	FAX: (801) 536-4099
POB 144820	
15 North 1950 West	
Salt Lake City, Utah 84114-4820	

Attachments: DFCM Form FDR R-307-309, Rule 307-309

CONTRACTOR'S AGREEMENT

FOR:

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____"

The DFCM General Conditions ("General Conditions") dated May 25, 2005 on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ DOLLARS AND NO CENTS (\$_____.00), which is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100%

CONTRACTOR'S AGREEMENT
PAGE NO. 2

Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of \$_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Invitation to Bid, Instructions to Bidders/ Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to

CONTRACTOR'S AGREEMENT
PAGE NO. 3

safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

CONTRACTOR'S AGREEMENT
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IN WITNESS WHEREOF, the parties hereto have executed this Contractor's Agreement on the day and year stated hereinabove.

CONTRACTOR: _____

Signature Date

Title: _____

State of _____)
County of _____)

Please type/print name clearly

On this ____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

(SEAL)

Notary Public

My Commission Expires _____

APPROVED AS TO AVAILABILITY
OF FUNDS:

David D. Williams, Jr. Date
DFCM Administrative Services Director

**DIVISION OF FACILITIES
CONSTRUCTION AND MANAGEMENT**

- Manager Date
Capital Development/Improvements

APPROVED AS TO FORM:
ATTORNEY GENERAL
November 30, 2006
By: Alan S. Bachman
Asst Attorney General

APPROVED FOR EXPENDITURE:

Division of Finance Date

PERFORMANCE BOND
(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of _____ DOLLARS (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars (\$ _____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ Dollars (\$ _____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)

) ss.

COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



Division of Facilities Construction and Management

CHANGE ORDER # _____

CONTRACTOR: _____

AGENCY OR INSTITUTION: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

CONTRACT NUMBER: _____

ARCHITECT: _____

DATE: _____

CONSTRUCTION CHANGE DIRECTIVE NO.	PROPOSAL REQUEST NO.	AMOUNT		DAYS	
		INCREASE	DECREASE	INCREASE	DECREASE

	Amount	Days	Date
ORIGINAL CONTRACT			
TOTAL PREVIOUS CHANGE ORDERS			
TOTAL THIS CHANGE ORDER			
ADJUSTED CONTRACT			

DFCM and Contractor agree that the terms, contract sum, scope of the Work and time specified in this Change Order shall constitute the full accord and satisfaction, and complete adjustment to the Contract and includes all direct and indirect costs and effects related to, incidental to, and/or reasonably implied from such change in the contract terms, sum, scope of the Work and time.

Contractor: _____

Date

Architect/Engineer: _____

Date

Agency or Institution: _____

Date

DFCM: _____

Date

Funding Verification: _____

Date

Page ____ of ____ page(s)

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**CERTIFICATE OF SUBSTANTIAL COMPLETION**PROJECT _____ PROJECT NO: _____
AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

The Owner acknowledges receipt of the following closeout and transition materials:

☐ As-built Drawings ☐ O & M Manuals ☐ Warranty Documents ☐ Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of _____ (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

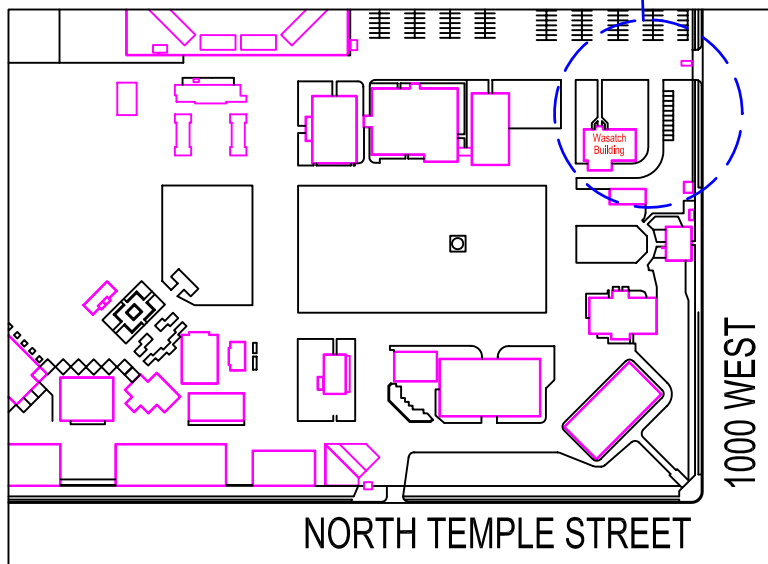
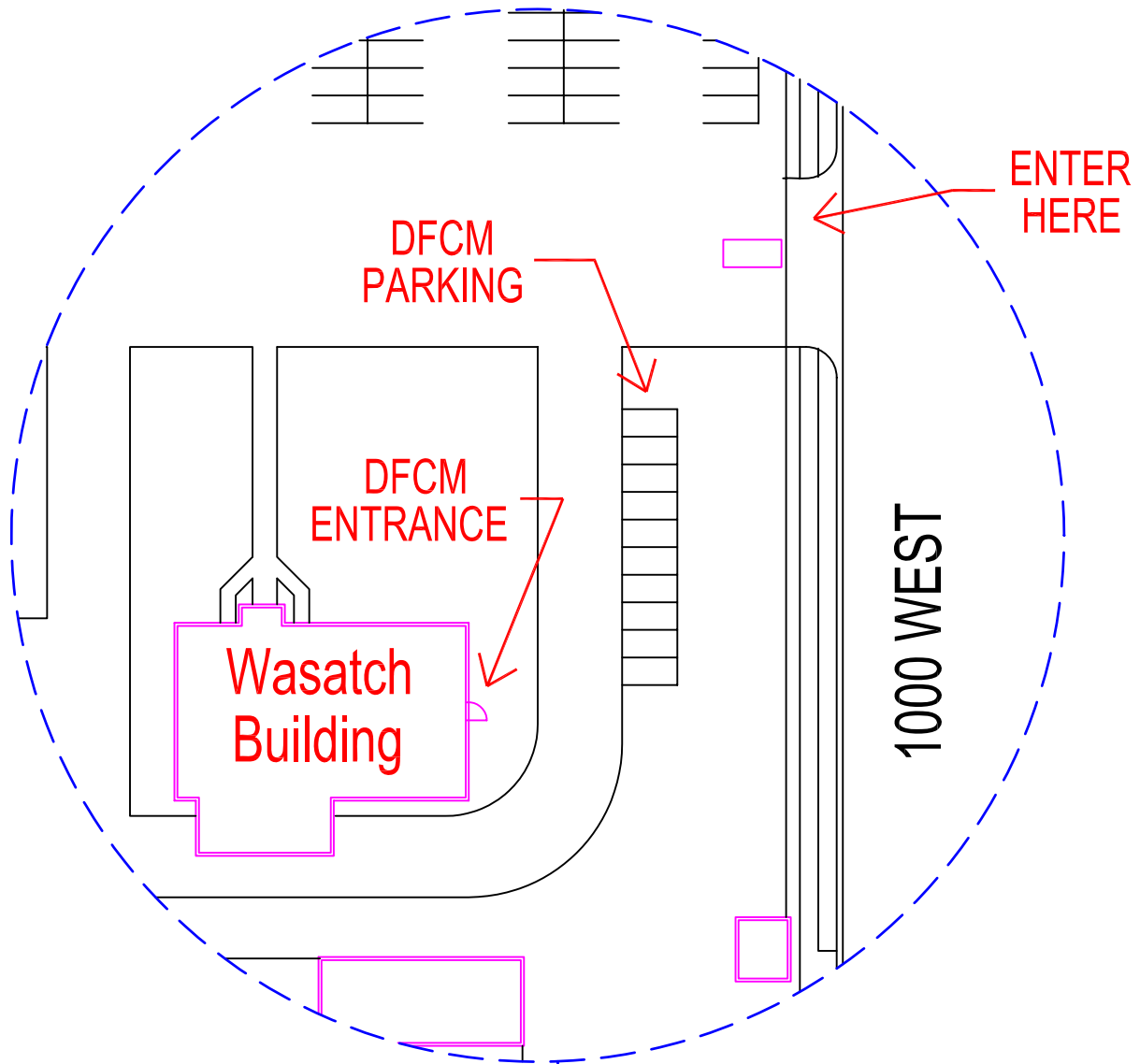
The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. The amount withheld pending completion of the list of items noted and agreed to shall be: \$ _____. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

_____ by: _____
CONTRACTOR (include name of firm) (Signature) DATE

_____ by: _____
A/E (include name of firm) (Signature) DATE

_____ by: _____
USING INSTITUTION OR AGENCY (Signature) DATE

_____ by: _____
DFCM (Owner) (Signature) DATE



UTAH STATE
FAIR PARK



DFCM Temporary Location

SECTION 02810

UNDERGROUND IRRIGATION SYSTEMS

This specification replaces Section 02810 of the APWA Manual of Standard Specifications. All other provisions remain in full force and effect.

Delete the existing section and replace with the following:

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Underground irrigation systems complete with heads, valves, controls, and accessories.
- B. Related sections:
 - 1. Section 02055 Common Fill
 - 2. Section 15011 Ductile Iron Pipe
 - 3. Section 15014 Polyvinyl Chloride Pipe.

1.2 REFERENCES

- A. Reference standards:
 - 1. NFPA 70: National Electric Code.

1.3 PERFORMANCE REQUIREMENTS

- A. The work to be performed under this Section shall consist of furnishing all labor and materials necessary to construct a complete working and tested underground sprinkler irrigation system per all drawings and specifications, providing 100 percent coverage on all lawns and planting areas on the site. Included also will be maintenance and warranties.
- B. The Contractor shall perform, but not be limited to, all of the following functions: paying all connection fees, deposits and all other charges related to the connection to the water source; obtain all permits; complete all excavation and backfill; provide backflow device, tapping saddle, yoke, stop and waste, corp. cock, concrete vaults and miscellaneous pipe fittings; make necessary road repairs; provide safety barrier; and make connection to water source. All work shall be in compliance to applicable codes and requirements of the utility companies involved.
- C. If any or all of the above mentioned fees or charges are not listed on the bidding schedule or on plan, they shall be included in the bid lump sum price of the irrigation sprinkling system item.
- D. Contractor shall verify with the appropriate water district the location of the water service main line and complete all requirements to bring water service to the site. Total cost to be included in the irrigation sprinkling system bid item.
- E. The above specification statement supersedes the graphic representation location of the contract limit line. This pertains to the water line location on either side of the street adjacent to the project site.

- F. All work shall be done in accordance with the drawings and specifications, as well as all applicable water and electrical codes.
- G. The Contractor shall operate, maintain until acceptance, and guarantee the new system until all lawn and plants planted on this project have become established and have been approved by the Landscape Architect.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's technical data and installation instructions.
- B. Pipeline Test Report: In accordance with Section 01815.

1.5 QUALITY ASSURANCE

- A. Testing agency: Pipe pressure testing during construction will be conducted by the Contractor.

1.6 PROJECT CONDITIONS

- A. Any discrepancies between existing site conditions and those indicated on the plans shall be called to the attention of the Inspector and/or Landscape Architect, prior to continuance of the project.
- B. The Contractor shall use only the equipment and products specified in the construction drawings. No substitution of materials will be allowed on the irrigation system without prior authorization from the Landscape Architect and the Owner.

PART 2 PRODUCTS

2.1 GENERAL

- A. All materials shall be manufactured by United States companies.
- B. Handling and unloading of all equipment, pipe, and fittings shall be in such a manner as to insure delivery at the job site in a sound, undamaged condition. Any equipment or pipe found to be damaged or defective in workmanship or materials shall be rejected or taken out if found installed.

2.2 PIPE

- A. All pipe, 4 inches inside diameter and smaller (including all fittings), shall be Schedule 40 PVC unless otherwise specified. See detailed drawings.
- B. All pipe, 6 inches inside diameter and larger (including all fittings), shall be PVC (except as required for conversion to metal fittings), Class 200.
- C. No bends in pipe shall be permitted. The Contractor shall use elbow fittings of 90, 45, and 22.5 degrees as individual situations demand.

2.3 FITTINGS

- A. All fittings on PVC pipe shall be Schedule 40 or 80 PVC, including conversions to metal pipe and fixtures. The fittings shall conform to ASTM D-2466.
- B. All tees coming out of main lines or valves and other fixtures, shall be horizontal so that no weight or pressure may be exerted through the fixture on the top or bottom of the main line. Tees shall be Sch. 80 SxSxS with SxT Sch. 80 bushing of

appropriate size to the valves and Sch. 40 SxT tees for the heads. See detailed drawings.

- C. All tees coming out of the lateral lines for heads and other fixtures shall be horizontal so that no direct weight or pressure may be exerted through the head to the top or bottom of the lateral line. Tees on lateral lines shall also be SxSxT to the head swing joints. See detailed drawings.

2.4 GATE VALVES

- A. Gate Valves shall conform to AWWA specification C 509. They shall be of Class 200 cast iron body. Resilient-seated Gate Valve and shall have a non-rising stem with rubber "O" rings. Stems shall be of cold rolled, solid bronze, high tensile strength. Valve shall be high strength cast iron, fully encapsulated urethane rubber wedge. Gate valves shall be hydrostatically pressure tested for 400 P.S.I. and shall be designated for a working pressure of 200 P.S.I. shall be an American-made waterous brand.
- B. Unless otherwise shown or specified, valves sized 3" and larger shall have flanged end connections. Valves 2-1/2" and smaller shall have threaded end connections i.e., #T113 non-rising stem. Buried valves shall have 2" square operating nuts. No handles or wheels will be permitted. Valves inside structures shall have wheel handles. Unions shall be installed on each side of all valves except flanged valves. Each valve shall contain a resilient wedge urethane rubber seat.
- C. The Contractor shall provide adequate material for the connection of valves to the system, i.e., adapters, flanges, nuts, bolts, gaskets, etc.
- D. All main line buried gate valves shall be fitted with a 4" minimum diameter pipe sleeve and 10" round "Brooks" bolt down box. Install a quick coupler just down stream of each gate isolation valve, for blow out purposes.

2.5 QUICK COUPLING VALVES

- A. Quick coupler valves shall be installed where specified on the plans. Each valve shall be heavy duty brass, two-piece, single lug locking cap.
- B. Quick coupler valves shall be installed within a 10" round Brooks Box unless next to concrete pad, then install to grade.
- C. The Contractor shall provide to the Landscape Architect at least 1 cap lock key and 1 quick coupling key with a swivel hose bib attached. These keys shall be delivered prior to final acceptance of the project.

2.6 CONTROL VALVE ASSEMBLY

- A. Control valves shall be installed as specified by the plans. Each valve shall be globe diaphragm and electrically activated as specified on the plans. No valve shall be installed more than 12 inches below finished grade. All pipe on the control valve manifolds shall be Schedule 80 PVC pipe. See detailed drawings.

2.7 MANUAL DRAIN VALVE ASSEMBLY

- A. Manual drain valves shall be required at all low points in the main lines. See plans, notes, and details.
- B. All manual drains shall be Ford B11333 heavy duty brass, ball valves.

- C. The location of each manual drain shall be shown on the "as built" drawing with dimensions from the nearest permanent fixture, such as a building corner, etc.
- D. Each manual drain valve will be accessed by a 2 inch PVC Schedule 40 pipe sleeve, capped by a locking valve cap with a key, enclosed within a 10" round Brooks bolt down box. Top of drain sleeve shall be 3" - 6" below lids of Brooks box.
- E. Each manual drain shall empty into a gravel sump, a minimum of 18 inches by 18 inches by 12 inches deep. The gravel shall be washed 3/4 inch rock.

2.8 AUTOMATIC DRAIN VALVES

- A. Automatic drain valves shall not be used on this project.

2.9 VALVE BOXES

- A. All control valves shall be housed in a Brooks 1419 standard series heavy duty plastic valve box with a locking lid. No valve box shall rest directly upon the valve or any fixture associated with it. Each valve box shall be centered on the valve it covers. Each valve box shall have 2 inches of pea gravel placed in the bottom underneath the valve and lines to reduce the potential of mud and standing water therein.

2.10 CONTROL VALVE WIRE

- A. All irrigation control wire shall bear approval as U.L listed type of underground feeder and each conductor shall be of electrical conductivity grade solid copper in accordance with ASTM-30. **No aluminum wire shall be used on this project!** All control wire shall be specifically designed for direct burial use. Sizes shall be #14 UF. A minimum loop of 24 inches shall be left at each valve, at each splice, and at each controller for expansion and/or servicing of the wire. All splices shall be water-tight. All wire, crossing water, attached to bridges, going under paving, or where conditions require protection, shall be housed in conduit or sleeves, all out of ground conduits shall be metal rigid conduit. All buried conduit can be PVC conduit.
- B. All connections made inside the box to connect wires to the valve shall be made inside a Spears dry-splice connector or 3M-DMY connector. Each connector shall be completely sealed and water-proof.
- C. All splices in control wire shall also be housed in a valve box, as specified above.
- D. Multiple wires in the same trenches shall be banded together at 10 foot intervals for protection. Where wires pass under paved areas, Schedule 40 PVC sleeves shall be installed prior to installation of the paving, if possible, and prior to installation of the wires. Sleeves shall be sized as follows: 1-11 wires in 1-1/4 inch pipe; 12-15 wires in 1-1/2 inch pipe; etc.
- E. All common or ground wires shall be White. Where more than one controller is required, a different color hot wire shall be used for each controller. Two spare wires shall be run from each controller. Two spare wires shall be run from each controller to the farthest valve under its control in all directions and any valve which is on a dead-end line. The spares shall also be a different color from the regular wires and shall be labeled at both ends. Each spare wire shall be brought up to the surface in each valve box it passes through and coiled with 24 inches for use in future connections. Each spare wire shall be tested for continuity prior to final

acceptance of the project and guaranteed by the Contractor to be functional. Should the maintenance personnel discover a defect within 1 year afterwards, the Contractor shall locate the problem and cause it to be repaired at his cost. Install extra wires as needed for moisture sensors.

- F. The pigment or color of the wires shall be integrated into the covering, rather than painted on.
- G. All control wires shall be installed in trenches 6 inches to either side of the pipes so that the wire is protected from damage during backfilling and maintenance operations. See detailed drawing showing the wire located in those positions. Control wires not placed in the trenches by the sides of the pipes, shall be buried 18 inches or deeper and marked on the "as built" drawings.

2.11 **SPRINKLER HEADS**

- A. All heads used on this project shall be as specified in the Irrigation Equipment Schedule shown on the plans.

2.12 **BACKFLOW PREVENTION ASSEMBLY**

- A. Backflow prevention devices shall be a reduced pressure principle backflow preventer consisting of a pressure differential relief valve located between two independently operated spring-loaded "Y" type center guided check valves. Assembly shall also have two full port resilient seated ball valves for shut-off and four resilient seated ball valve test cocks and bronze body construction. Larger sizes (2 ½" and up) may have two non-rising stem resilient wedge gate valves in lieu of ball valves.
- B. Install according to all local, state, and national codes and regulations, and per manufacturer's recommendations.

2.13 **AUTOMATIC CONTROL SYSTEM**

- A. Furnish low voltage system manufactured expressly for control of automatic control valves used in an underground irrigation system. Provide adequate capacity to accommodate each valve on the system separately. Do not double valves to circuits.
- B. Install the brand and model of controller as specified in the Irrigation Equipment Schedule. No substitutions shall be allowed.
- C. Controller enclosures shall be vandal and weather resistant, manufactured of 100% stainless steel, with 3-point locking mechanism, flush mounted access handle and heavy duty continuous hinge, and side louvers at bottom and top for cross ventilation.

2.14 **DRIP IRRIGATION**

- A. Drip emitters shall be of the individual, self-cleaning, pressure-compensating type.
- B. Tubing shall be constructed of high quality linear, low density, UV-resistant, polyethylene resin materials with internal, integral emitters at specified intervals.
- C. All insert barbed fittings shall be constructed of molded, UV-resistant plastic. Each fitting shall have a minimum of two ridges or barbs per outlet. All fittings shall be of one manufacturer and shall be available in one of the following end configurations:

1. Barbed insert fittings.
2. Male pipe threads (MPT) with barbed insert fittings
3. Female pipe threads (FPT) with barbed insert fittings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Site Visit: Visit and inspect site; take into consideration known and reasonably inferable conditions affecting work. Failure to visit site will not relieve Contractor of furnishing materials and performing work required.

3.2 CONSTRUCTION STAKING

- A. The Contractor shall provide the necessary staking to obtain the layout shown on the plans. The points of reference shall be the existing walks, buildings, curbs, etc. The staking shall be approved by the Landscape Architect prior to commencing installation operations. Any changes in the system which appear necessary due to field conditions must be called to the attention of the Landscape Architect and approved at the time they are discovered and prior to making the change.

3.3 EXCAVATION AND BACKFILLING

- A. Excavation:
 1. Excavation work shall be as deep and as wide as will be required to safely perform the work, such as making mainline connections or forming vaults.
 2. Trenches shall be deep and wide enough to provide working space for placing 2 inches of mortar sand bedding underneath all new mainline pipe and fittings where the soil is rocky or gravelly. Place 18 to 30 inches of cover over the top of all pipe and fittings on main lines (lines which maintain a constant water pressure). All trench bottoms shall be sloped so that the pipe will gravity drain back to the main connection point or the nearest manual drain. If the existing main line is deeper than 30 inches, the Contractor shall install a riser to a depth of 18 to 30 inches and then install the new line at the required 18-30" depth. At no time will the mainline be installed deeper than 30" unless prior approval by Landscape Architect or Inspector.
 3. Trenches for lateral and supply lines (lines which carry water to the heads), shall be deep enough to maintain 8 to 14 inches of cover over the top of all pipe and fittings. Trenches shall also be deep enough to guarantee that all swing joints drain back to the lateral and supply lines. Lateral lines may be pulled by a mechanical puller provided all other applicable specifications are met.
 4. Trenches for lines supplying small heads shall be deep enough to maintain a minimum of 8 to 12 inches of cover over the top of all pipe and fittings. Trenches for these lines shall be a minimum of 6 inches away from any walks, curbs, and of sufficient width to accommodate tees coming out sideways (horizontally) from the laterals. This also includes the other fittings which carry the small heads.
 5. Any rocks or other debris over one inch in diameter uncovered during excavation or trenching shall be removed from the area.

6. If more than one line is required in a single trench, that trench shall be deep and wide enough to allow for at least 6 inches of separation, both vertically and horizontally between pipes.
7. Any existing utility lines damaged during excavating or trenching shall be repaired immediately after notification of the utility owner and to his satisfaction. Should utility lines be encountered, which are not indicated on the plans, the Engineer or Landscape Architect shall be notified. The repair of any damage shall be done as soon as possible by the Contractor or the utility owner, and proper compensation will be negotiated by the District. Such utility locations shall be noted on the "as built" drawings required before final payment of the sprinkler irrigation system contract.
8. Where trenching is done in established lawn, care will be taken to keep the trenches only as wide as is necessary to accomplish the work. The trenches shall be backfilled as specified above and then 4 inches of topsoil will be placed to bring the trench up to existing grade so that sod can be laid. The new sod shall be first grade sod of standard width and shall be laid along the trenches so as to match the existing sod. No small pieces of sod shall be used and only standard lengths shall be accepted. No sod from the construction site shall be used unless otherwise specified.

B. Backfilling:

1. No backfilling of trenches shall be done until the system has been inspected for proper trench depths, installation of equipment, control wire, and location of heads by the Landscape Architect or Inspector.
2. Before trenches are backfilled, the Contractor must show the Landscape Architect or Inspector, the redlined "as built" drawing he has been keeping on the site, showing that changes and corresponding dimensions have been recorded where changes have been made.
3. Prior to backfilling, the system shall be tested under pressure for leaks and general operation of the equipment. The main line shall be tested for a period of 4 hours at a pressure of 120 PSI. Lateral lines shall be tested for 1 hour at design pressure, which is 60 PSI. Any failures detected during the testing period shall be repaired by the Contractor and the testing shall be repeated. The Landscape Architect or Inspector shall certify the testing to insure that it has been completed and that the system passed the test. All defects discovered by the pressurization and operation test shall be corrected before proceeding with further work.
4. Backfill under and around the lines to the center line of the pipe shall be placed in maximum layers of 6 inches and thoroughly compacted.
5. Special care shall be taken to assure complete compaction under the haunches of the pipe. Backfill compaction under the haunches of the pipe shall be compacted to the original density. Compaction requirements above the pipe shall be the same as for surrounding areas.
6. No rocks larger than 1 inch in diameter nor any other debris shall be backfilled into the trenches. All trenches shall be backfilled then saturated with water sufficiently to insure no settling of the surface after lawn is planted or sod is replaced.

3.4 **SPRINKLER HEADS**

- A. All heads shall be installed above grade so as to minimize washing of the top soil and seed during the landscaping establishment period, except those which border paving or flat work of any kind. These heads shall be installed at the finished grade of the adjacent paving or flat work. Prior to final acceptance of the project, all heads shall be raised or lowered to final lawn or planting grade.
- B. Heads installed in existing sod shall be set at the grade of the soil.
- C. All rotary pop-up heads shall be installed at final grade on double swing joints. See detailed drawings in the section following this one. All swing joints must drain by gravity back to the supply lines.
- D. All pop-up, shrub spray, lawn spray, bubbler and strip spray heads shall be installed as shown in the details.
- E. All pipes, lines, and risers shall be flushed thoroughly with water before installation of any heads. All debris and rocks found at that time shall be removed from the area as soon as possible.

3.5 **PIPE SLEEVES**

- A. Pipe sleeves shall be required under all new concrete or other new paving. The size of the sleeve shall be at least twice the size of the pipes or wires to be sleeved. Wires shall be sleeved separately within their own sleeve. All pipe sleeves 4" and smaller in diameter shall be PVC Schedule 40 pipe; sleeves greater than 4" in diameter shall be CL. 200 PVC.

3.6 **THRUST BLOCKS**

- A. Thrust blocks are needed wherever the main pipe line:
 - 1. Changes any direction at tees, angles, and crosses vertical and horizontal.
 - 2. Changes size at reducers.
 - 3. Stops at a dead-end.
 - 4. Valves at which thrust develops when closed.

The size and type of thrust block depends on pressure, pipe size, kind of soil, and type of fitting. As a general rule, one cubic foot (minimum) of class AA(AE) Type II concrete is required for each thrust block.

- B. Thrust blocks shall rest against undisturbed original earth in the direction of thrust.
- C. Where a fitting is used to make a vertical bend, use a bar to anchor the fitting to a thrust block braced against undisturbed soil. The thrust block should have enough resistance to withstand upward and outward thrusts at the fitting.

3.7 **BACKFLOW PREVENTION ASSEMBLY**

- A. The Contractor shall install backflow prevention equipment behind the point of connection (downstream) to the supplying utility lines and shall comply with local water district or State (whichever is most restrictive) requirements for such. See plans and details for more information. Install a quick coupler just down stream of backflow prevention assembly for blowout purposes.

3.8 ELECTRICAL POWER SUPPLY

- A. If electrical service is not already in place, the Contractor shall be required to make all necessary arrangements with the appropriate power company, including but not limited to, paying fees, making power connections, providing poles, weatherhead and meter, etc., as specified on the plans.

3.9 PIPE AND FITTINGS

- A. The ends of all pipe shall be reamed and free of all inside scale or burrs. Threads shall be cut clean and sharp, and to a length equal to 1-1/8 times the length of the female thread receiving the pipe. The threaded pipe shall be screwed into a full length of the female thread.
- B. All pipe joints shall be properly sealed with teflon tape properly applied to the areas to be joined.
- C. Every care shall be taken during installation to prevent dirt and debris (especially rocks) from getting into the pipes.

3.10 INLINE DRIPPERS

- A. Drip tubing with pressure compensating emitters shall conform to the following:
 - 1. Tubing shall be constructed of high quality linear, low density, UV-resistant polyethylene resin materials with internal, integral drippers at specified intervals.
 - 2. Drippers or emitters shall be of the individual, self-cleaning, pressure compensating type.
- B. Inline drip tubing shall be spaced at a distance equal to or less than the inline emitter spacing. For slope applications, place drip tubing laterals parallel to the slope contour. When slopes exceed 3%, increase the recommended lateral spacing by 25% on the lower 1/3 of the slope.
- C. All insert barbed fittings shall be constructed of molded, UV-resistant plastic. Each fitting shall have a minimum of two ridges or barbs per outlet. All fittings shall be of one manufacturer and shall be available on one of the following end configurations:
 - 1. Barbed insert fittings
 - 2. Male pipe threads (MPT) with barbed insert fittings
 - 3. Female pipe threads (FPT) with barbed insert fittings
- D. All drip tubing shall be held in place by soil staples and shall conform to the following:
 - 1. Sandy Soil - One staple per every three (3) feet and two (2) staples on each change of direction (tee, elbow, or cross)
 - 2. Loam Soil - One staple every four (4) feet and two (2) staples on each change of direction (tee, elbow, or cross)
 - 3. Clay Soil - One staple every five (5) feet and two (2) staples on each change of direction (tee, elbow, or cross)
- E. Each remote control valve assembly shall contain the following components:
 - 1. PVC ball valve
 - 2. Inline disc or screen filter with 100 micron/150 mesh filter element
 - 3. Remote control valve capable of operating at very low flow levels
 - 4. Inline pressure regulator

All components shall be installed according to manufacturer's recommendations, and located within a single valve box, one valve per box (no multi-valve assemblies permitted).

- F. Provide the following equipment to each valve circuit, located and installed per manufacturer's recommendations:
 - 1. Line flushing valve(s) - minimum of one on each exhaust header and one for every 15 gpm in the circuit
 - 2. Air/Vacuum relief valve(s) at all high points in the system
- G. Inline dripper tubing shall be installed at finished grade with soil staples and covered with three (3) inches of specified mulch. Supply and exhaust headers shall be installed at normal lateral line depths.
- H. Installation of inline drip circuits shall generally conform to the following steps:
 - 1. Assemble and install ball valve, filter, remote control valve and pressure regulating valve assembly in accordance with installation details.
 - 2. Assemble and install supply header(s) in accordance with installation details. Tape or plug all open connections to prevent debris contamination.
 - 3. Install lateral drip lines in accordance with details and relevant specifications and manufacturer's recommendations. Tape or plug all open ends while installing to prevent debris contamination.
 - 4. Assemble and install exhaust header(s) in accordance with installation details. Tape or plug all open connections to prevent debris contamination.
 - 5. Install air/vacuum relief valve(s) at the zone's highest point(s) in accordance with installation details.
 - 6. Thoroughly flush supply header(s) and connect drip lateral lines while flushing.
 - 7. Thoroughly flush drip lateral lines and connect to exhaust header(s) and any interconnecting lateral lines while flushing.
 - 8. Thoroughly flush exhaust header(s) and install line flushing valves in accordance with details.

3.11 AS-BUILT DOCUMENTS

- A. The Contractor shall keep, as his work is installed, an accurate record of exact dimensioned locations, grades, elevations, and the size of all exterior and interior underground piping, valves, and drains. Dimensions shall indicate distances from columns, buildings, curbs, and similar permanent features on the site. This information shall be recorded on a print as the work progresses, but shall be permanently recorded on a reproducible 2 mil mylar original which shall be given to the Landscape Architect before the project is accepted. The mylar shall be a copy of the original plans for the project produced by a local printer at the Contractor's expense.
- B. Final payment for the contract will not be processed until "as built" drawings or plans are received by the Landscape Architect.

3.12 OPERATIONAL TEST AND MAJOR INSPECTIONS

- A. When installation of all equipment is complete, and backfilling and grading operations are substantially complete, the Contractor shall call for an operational test and major inspection of the sprinkler irrigation system. Notice by the

Contractor shall be given, in writing, 3 days in advance to the Landscape Architect so that proper scheduling can be done for those who are to attend.

- B. At the appointed time, an inspection of all valve boxes, controllers, gate valves, and heads shall be made. The entire system will be tested to check for pressure, operation, water coverage, and head adjustment. A list of discrepancies (punch list), shall be written within 3 days and distributed as needed. Each item on the list shall be corrected before the system will be approved by the Inspector who will notify the Landscape Architect before payment will be made. The Contractor will be back charged for time spent by the Owner and any consultants who have been brought to the site for a final inspection when the project is not ready for a final inspection.

3.13 **GUARANTEE AND MAINTENANCE**

A. Guarantee

1. Upon acceptance of the sprinkler irrigation system as being operational and properly installed, the Contractor shall guarantee the workmanship, materials, fixtures, and equipment to be free from defects for 1 year after that date.
2. The Contractor shall insure and guarantee complete drainage of the system. In working with or connecting to an existing system, he shall guarantee compatibility in operation and drainage between the two systems.

B. Maintenance

1. In the fall of the year during the installation and guarantee period, the Contractor shall meet with the Owner's maintenance personnel on the site. The Contractor shall winterize the system by draining all of the water and doing everything necessary to insure protection of the system until Spring. Blowing out the lines by compressor shall be permitted during the 1 year guarantee. The individuals involved from both parties shall exchange all information necessary for the eventual take-over of the system by the Owner.
2. The Contractor, with the Owner's maintenance personnel, inspector, or Landscape Architect in attendance, shall energize the sprinkler irrigation system again the following Spring and shall repair all defects found as a result of winter damage, improper installation, improper maintenance, defective materials or inadequate sprinkler drainage.
3. The Contractor shall coordinate with the landscaping sub-contractor during the entire landscaping and lawn establishment period on the use, scheduling, and maintenance of the sprinkler system.

3.14 **FINAL INSPECTION**

- A. At the end of the guarantee period, when the lawn and landscaping have been approved, the Contractor shall call for a final inspection of the sprinkler irrigation system. There shall be 5 days notice given, in writing, to the Landscape Architect, prior so that the appropriate people may attend.
- B. Prior to that time, all heads shall have been adjusted to their proper pattern, radii, and height. The system shall have been flushed out, checked for operation, and any defects corrected. The entire system will be inspected and checked to determine if everything is in working order and ready to be turned over to the Owner. A final list of items found in need of correction (if any), will be made and the Contractor

shall correct them. The Inspector will notify the Project Landscape Architect when he has verified that every item is acceptable. Upon acceptance of the system by the Landscape Architect, the Owner shall assume all responsibility for the system.

END OF SECTION

SECTION 02910

PLANTING

This specification adds a new section to the APWA Manual of Standard Specifications. All other provisions remain in full force and effect.

Add the following new section:

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Plants and groundcover requirements.
 - 2. Bedding, topsoil, and temporary support.
- B. The work to be performed under this section shall consist of furnishing all materials, labor, and plants necessary for the proper planting of all trees, shrubs, and groundcover of the kind and sizes specified where applicable, at the prescribed location, and otherwise in accordance with the drawings and specifications or as directed by the Landscape Architect.

1.2 REFERENCES

- A. ANN: American Associations of Nurserymen, Inc.
- B. ANSI Z60.1: American Standard for Nursery Stock.
- C. FS O-F-241: Fertilizers, Mixed Commercial.

1.3 QUALITY ASSURANCE

- A. Perform work in conformity with applicable requirements of AAN.
- B. Obtain nursery stock and other plant materials from approved sources prior to order and delivery.
- C. Provide plants that are declared free of disease and insect pests.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Exercise care in digging, transporting, handling, and packing of all plants.
- B. Handle plants so roots are protected at all times. If delivery is in open vehicles, cover entire load without causing over heating.
- C. Deliver plant material immediately prior to placement. Keep plant material moist.
- D. Protect root balls from sun and wind by covering with soil or other suitable material if not planted immediately on delivery.
- E. Store fertilizer in a weatherproof location such that its effectiveness will not be impaired.

1.5 ACCEPTANCE

- A. Plants shall be accepted if ball of earth surrounding roots has not been cracked or broken.
- B. Plants shall be accepted if burlap, staves, and ropes required in connection with transplanting are installed and still intact upon delivery.

- C. Heeled in stock from cold storage shall not be accepted.

1.5 SAMPLES

- A. Samples of materials listed below shall be submitted to the Landscape Architect for inspection and approval prior to the beginning of work under this contract.
- B. Delivery of materials may begin only after samples have been approved. All materials furnished for the work shall conform in every respect to the approved samples. Any non-conforming materials will be rejected.

PART 2 PRODUCTS

2.1 GENERAL

- A. Provide plants of normal growth and uniform height, according to species, with straight canes and well developed leaders, roots, and tops.
- B. Provide plants of sizes indicated; size stated in each case being interpreted to mean dimensions of plant as to stands in its mature position in nursery without straightening of any branches or leaders.
- C. Provide legible labels attached to all plants, specimens, bundles, boxes, bales, or other containers indicating botanical genus, species, and size of each.
- D. Plants cut back from larger sizes to meet specifications shall be rejected.
- E. Balled and burlapped deciduous shrubs will be acceptable in lieu of container growth deciduous shrubs subject to limitation of container grown stock.

2.2 TREE STAKES

- A. Tree stakes shall be two (2) inch by two (2) inch by eight (8) foot wood stakes used as indicated on the plans. Steel stakes may be used if approved by the Landscape Architect and reclaimed after one year.

2.3 PLANTS

- A. All plants shall comply with Federal and State Laws requiring inspection for plant disease and infestations.
- B. Any inspection certificates required by law shall accompany each delivery of plants and such certificate will be filed with the Landscape Architect. All plants shall be subject to inspection and approval at the place of growth or upon delivery to the site for their quality, size, species, and variety. Such approval shall not impair the right of inspection and rejection at the site or during progress or work for size and condition of the plants, latent defects, or injuries. Any and all rejected plants shall be removed immediately from the premises by the Contractor. The Contractor shall make all replacements at his expense should he fail to comply in full with any of the specifications. Necessary replacements will be made as soon as weather conditions permit and all such plants replaced shall conform to all specifications herein.
- C. Names and Grades:
 - 1. Plant names shall conform to the nomenclature of “standardized plant names” as adopted by the American Joint Commission on Horticultural Nomenclature, 1942 Edition. The names and varieties included therein are generally in conformity with the names accepted in the nursery trade.

2. Size and grading standards shall conform to those of the American Association of Nurserymen, Inc., as published in "American Standard for Nursery Stock", 1959 Edition, with all current revisions unless otherwise specified.
 3. The caliper of trees shall be measured six (6) inches above the surface of the ground.
 4. Measurements on all trees and shrubs shall be taken with the branches in a normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch or root tip to tip. No trees which have had their leaders cut or so damaged that cutting is necessary, will be accepted.
- D. No substitution of size, grade, variety or any species shall be permitted except by written permission of the Landscape Architect.
- E. Plant Size:
1. All plants shall conform to the size, age and condition as specified in the plant list shown on the drawings. Undersized plant material will not be approved.
 2. No additional compensation shall be due the Contractor if larger than specified plant material is provided.
 3. Due to the large size of the trees and evergreens being specified, only balled and burlapped or container stock will be accepted. No bare root stock will be accepted. The tree planting details may show bare root trees, but container stock shall be planted as shown in the planting detail.
- F. Plant List:
1. Plants lists indicate minimum size requirements only. Plant materials shall be equal to or greater in size than those specified.
 2. Any discrepancies between plant lists and plans shall be brought to the attention of the Landscape Architect immediately.
 3. In all cases the Contractor shall be held responsible for all plant materials indicated on the plans unless otherwise directed in writing by the Landscape Architect.
 4. Each bidder shall investigate sources of supply and satisfy himself that he can supply all of the plants mentioned in the planting lists in size, variety, and quantity noted and specified before submitting his bid. Failure to take this precaution will not relieve the successful bidder from his responsibility as Contractor to furnish and install all plant material in strict accordance with the contract requirements without additional expense to the owner.
- G. All plants shall be fresh and vigorous, and of normal habit and growth, and free of disease, insects and insect eggs and insect larvae, weeds and weed seed. No heeled-in plants from cold storage shall be accepted except on approval by the Landscape Architect prior to planting.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Site Visit: Visit and inspect site; take into consideration known and reasonably inferable conditions affecting work. Failure to visit site will not relieve Contractor of furnishing materials and performing work required.

3.2 **PLANTING SEASONS**

- A. No planting shall be done in frozen soil or during unfavorable weather conditions, subject to the approval of the Landscape Architect or his representative.

3.3 **PLANT CONDITION**

- A. All precautions customary in good trade practice shall be taken in preparing plants for planting and workmanship that fails to meet the highest standards will be rejected. All balled and burlapped plants shall have firm and natural balls of earth. No plant shall be planted in the ball is cracked or broken either before or during the process of planting. Loose, broken or manufactured balls will be rejected.
- B. All plant materials in cans shall have been established in that can for a period of time not less than one (1) year, and shall be shown to be in a sound, healthy and vigorous state of growth. Plants not in such condition shall be rejected.
- C. All plant material shall be planted immediately upon arrival on the premises if possible. If planting cannot be done immediately, the roots shall be protected from the sun and kept in a moist condition until the time of planting. Such protection may be provided by laying the plants on the north side of the building and covering the roots with wet straw.
- D. If it is anticipated that planting will not be done for more than twenty-four (24) hours after the arrival of plants upon the premises, the bare root and ball and burlap stock shall be heeled-in on the north side of a building and all roots completely covered with dirt which shall be wetted down frequently. Care will be taken in the handling of all ball and burlap materials so that the earth around the roots is disturbed as little as possible.

3.4 **PLACEMENT OF PLANTS**

- A. Plants shall be generally located as indicated by the drawing. The Contractor shall stake out the location of all plants and planting areas with identified plant stakes, and no excavation shall commence until such locations have been approved by the Landscape Architect. In the event that underground construction work or obstructions are encountered during excavation of the holes, alternate locations will be assigned and approved by the Landscape Architect.

3.5 **PLANT INSTALLATION**

- A. All concrete work, sprinkling systems, and finished grading are to be completed and approved by the Landscape Architect or his representative before any planting of the specified plant materials is begun. No planting will be done without direct supervision of the Landscape Architect, or his representative.
- B. No tree planting shall be initiated until sprinkling system is complete and tested. However, tree planting shall precede lawn planting.
- C. All trees and shrubs shall be planted in pits as detailed in the planting details contained herein or as noted on the drawings. Tree and shrub pits in lawn areas shall be circular in outline, with a diameter at least three (3) feet greater than the diameter of the ball of each plant to be planted.
- D. Plants in cans shall be planted in pits having a diameter at least three (3) feet greater than the diameter of the can from which the plant is taken. All plant pits shall be slightly less or equal in depth to the root ball. When the plant is properly placed in

the plant pit, the root collar shall be approximately one (1) inch above finished grade.

- E. All subsoil excavated from tree and shrub pits shall be removed from the site.
- F. The plant shall be set vertically in the plant pit, and backfill material carefully and firmly worked and tamped under and around the root system of ball to fill all voids. When partially backfilled and compacted, the burlap shall be removed from the sides of the root ball and the tops cut or adjusted to prevent the formation of air pockets. No burlap shall be pulled from under the root balls of the plants. The plants shall then be watered with a hose to completely soak the roots and backfilled with specified planting soil mixture.
- G. The holes will then be completely backfilled and tamped well. A shallow basin or rain cup will be left around each plant. This basin will be equal in diameter to that of the original planting hole. Each plant will be placed in an individual hole. Holes which settle will be promptly filled with additional soil mixture at no additional expense to the owner.
- H. A minimum of twelve (12) inches of topsoil is required in all planting beds. The Contractor will first use topsoil stockpiled on the site, and then furnish all additional topsoil as needed. Any topsoil furnished must meet the specifications stated in the planting notes shown on the construction drawings.
- I. No trees will be planted closer than six (6) feet from any concrete walk or other paved surface except as approved by the Landscape Architect.

3.6 **STAKING**

- A. All trees, including evergreen trees, shall be staked.
- B. Staking shall be performed as follows:
 - 1. Two (2) 2"x 2" wood stakes, eight (8) feet in length, will be used to support each tree planted under this contract unless otherwise indicated.
 - 2. Tree ties shall conform to the staking detail shown on the planting detail sheet.
 - 3. Each stake will be located six (6) to eight (8) inches away from the trunk and each opposing the other to provide maximum support to the trunk.
 - 4. The stakes will be driven into the hole after the tree has been set-in, but before backfilling begins so as to avoid damage to the roots.

3.7 **WATERING**

- A. All plants shall be thoroughly watered immediately after planting. This shall mean full and thorough saturation of all backfill in the pits and beds during the same day of planting. Water shall be applied only by open end hose at very low pressure to avoid air pockets, injury to the plant, or washing away of backfill. When planted, watered, and fully settled the plants shall be vertical and the stand shall be slightly above the stand in the nursery.
- B. Supplemental Watering:
 - 1. The Contractor shall hand water newly planted trees, twice a week for eight weeks.
 - 2. A minimum of five (5) gallons per tree per watering required. Amount may vary pending seasonal rainfall.

3. The Contractor shall use a quick coupler and hose connected to the irrigation system to hand water the trees. Any other method must be approved by Landscape Architect.
4. The Contractor must locate and stake any sprinkling head or valve box within 10' feet of proposed tree location, and must establish direction of lateral or main sprinkling line that serves the staked sprinkler head or valve box. This procedure will help eliminate hitting underground irrigation pipes.
5. The Contractor shall take extra care to watch for sprinkling heads and valve boxes in lawn area. Any broken sprinkling heads or valve boxes, etc., shall be replaced by Contractor at no expense to owner.

3.8 **GRADES**

- A. Finished grade of topsoil and planting areas will be one and one-half (1 ½) inches below the top surface or finished grade of any paving, mowstrips, or walks adjacent to the planting area.

3.9 **PRUNING**

- A. All plants shall be neatly pruned, after planting and inspection by the Landscape Architect, in accordance with the best horticultural practice. Broken or badly bruised branches shall be removed with a clean cut. Each plant shall be pruned to preserve its natural form and character, and in a manner appropriate to its particular requirements. In general, at least one-fourth (1/4) of the wood of deciduous shrubs shall be removed by thinning or shortening branches. Trees shall not be end pruned, but laterally thinned to preserve the natural character of the tree. All pruning shall be done by skilled men and with sharp tools. Pruning cuts over one-half (½) inch in diameter shall be painted with tree paint approved by the Landscape Architect.

3.10 **CLEAN UP**

- A. Throughout the course of planting, excess and waste materials as well as excavated subsoil shall be continuously and promptly removed. All areas will be kept clear and all reasonable precautions taken to avoid damage to existing structures, plants, and grass. When planting in an area has been completed, the area shall be thoroughly cleaned of all debris, rubbish, subsoil, waste materials and removed from the property.
- B. The ground surface shall be left in a condition satisfactory to the Landscape Architect or his representative.

3.11 **REMOVAL OF STAKES**

- A. At the conclusion of the guarantee period and prior to final inspection by the Landscape Architect, of all planting, the Contractor shall be responsible for the removal of all tree stakes. This period of time shall be approximately 1 year after initial planting.
- B. Stakes shall be removed by first cutting the ties securing the tree to stakes and secondly pulling stakes or guys out of the ground.
- C. Stakes shall not be broken off above, at, or below ground levels but removed completely.

3.12 **ESTABLISHMENT, MAINTENANCE, REPLACEMENT AND GUARANTEE**

- A. The Contractor shall be responsible for the proper care of all trees, shrubs, and ground covers during the period when these plants are becoming established.
- B. All plants shall be kept in a healthy condition by any and all necessary operations of maintenance; to include but not be limited to, watering, weeding, pruning, spraying, adjusting of guys for the entire period of establishment.
- C. The period of establishment shall begin at the time that the planting phase of the work is completed and shall continue for a minimum period of sixty (60) days from that date.
- D. A one (1) year guarantee period shall begin at the end of the establishment period.
- E. Plants which die or become unhealthy from any cause or appear to be in a badly impaired condition at any time during the guarantee period shall be removed promptly and replaced, and any plants that settle below or rise above the desired finished grades shall be reset at the proper grades.
- F. All replacements shall be plants of the same kind, size, and quality as originally specified in the "plant list" and they shall be furnished, planted, staked, and maintained as specified herein at no additional cost.
- G. The Contractor will not be responsible for plants destroyed or lost due to occupancy of the project or vandalism on the parts of others.
- H. At the conclusion of the guarantee period a final inspection of all planting included in this contract will be made by the Landscape Architect. At that time any plant found to be not in a healthy growing condition, broken, damaged, or otherwise in such condition as to impair or destroy the symmetrical or other desired appearance as determined by the Landscape Architect shall be noted. Plants so noted shall be removed immediately from the site by the Contractor and replaced by him, as specified under this section with plants of like kind and size in the manner previously specified for the original planting without extra compensation.

3.13 **PROTECTION OF EXISTING TREES**

- A. The Contractor shall be fully responsible for any damage to existing trees.
- B. No pruning, thinning, or cutting will be allowed unless written permission is given by the Landscape Architect.
- C. The Contractor shall replace with like kind and size any trees or existing shrubs by him or his sub-contractors.

3.14 **MULCH REQUIREMENTS**

- A. Three (3) inches of mulch is required in shrub beds and over tree planting pits.

END OF SECTION

SECTION 15042

BOOSTER PUMP

This specification adds a new section to the APWA Manual of Standard Specifications. All other provisions remain in full force and effect.

Add the following new section:

PART 1 GENERAL

1.1 SUMMARY

- A. The entire pump station and the control panel shall be designed, assembled, programmed and tested by a single manufacturer, within the confines of a UL certified manufacturing facility. The manufacturer shall employ service personnel who are trained, and certified, in every aspect of service that may be required on the pump station. It shall not be acceptable for the control panel to be designed, manufactured, programmed, or serviced by any entity, other than the pump station manufacturer.

PART 2 PRODUCTS

2.1 PUMP STATION SKID & ENCLOSURE

- A. The pump skid and appurtenances shall be cleaned to bare steel and coated with a baked on powder coating. Spray on coatings will not be accepted. The pump station shall be pressure tested prior to coating. No welding shall be performed after the pump station is powder coated.
- B. The pump station enclosure shall be constructed of minimum 14ga. galvanized steel, and coated with Reflex RX700 polyurethane for noise dampening.

2.2 VFD PUMP CONTROL PANEL

- A. The variable frequency drive pump control panel shall be Manufactured as follows:
 - 1. The variable frequency drive shall be an ABB rated for the FLA of the pump motor.
 - 2. The VFD shall include the pump and fan macro.
 - 3. The pump control panel shall include a service entrance disconnect. It shall not be possible to open the panel door, and access the electrical components within, without disconnecting the power via the switch on the panel door.
 - 4. Manual selectors, HOA selectors and reset buttons for each device, as well as status lights and a speed potentiometer shall be installed on the door of the enclosure.
 - 5. The entire pump control panel shall be UL listed and rated for outdoor installation.

2.3 **PROGRAMMABLE LOGIC CONTROLLER**

- A. The PLC shall be installed, programmed, and serviced by the pump station manufacturer.
- B. Programmable logic controller (PLC) for all switching and timing functions not performed by the VFD. The PLC shall also perform the following functions:
 - 1. Low pressure, high pressure and low water shutdown "User settable"
 - 2. Low flow shut-down
 - 3. Control of automatic valve supplying the intake screen system
 - 4. Future timing and control changes that may be required to fine tune the pump station

2.4 **FLOW SWITCH**

- A. The system shall include a flow switch for the purpose of shutting the system down in the event that the pump is running, but no water is flowing on the discharge side of the pump. Flow switch operation shall be controlled by the PLC. The PLC shall have the capability of being programmed with time delays, as well as automatic restarts.

2.5 **VENTILATION FAN**

- A. The system shall include a ventilation fan (or fans) that will adequately cool all of the enclosed equipment during the most extreme expected seasonal temperatures. The system shall allow for the fan system to be operated in either of two ways; either the fans start automatically when the pump starts, or the fans may be set to run constantly.

END OF SECTION